WHAT IS CLAIMED IS:

1. A gear-driving-system designing system, comprising:

a setting section for setting a gear characteristic value for a gear driving system;

a calculating section for simulating an oscillation in a final gear of the gear driving system, based on the gear characteristic value set in the setting section;

a judging section for judging whether or not the oscillation in the final gear determined by the simulation in the calculating section is within an acceptable range; and

a setting changing section for changing the gear characteristic value set in the setting section, when the judging section judges that the oscillation in the final gear does not fall within the acceptable range.

2. The gear-driving-system designing system as set forth in claim 1,

wherein the calculating section includes:

an equation creating section for creating an equation of oscillation motion for a predetermined oscillation system in the gear driving system, using the gear characteristic value set in the setting section; and

an equation analyzing section for solving the

equation of oscillation motion created by the equation creating section, so as to determine an oscillation frequency and an oscillation amplitude of the oscillation system, and

wherein the judging section judges that the oscillation in the final gear is within the acceptable range when at least one of the oscillation frequency and the oscillation amplitude determined by the equation analyzing section fall within the acceptable range.

3. The gear-driving-system designing system as set forth in claim 2, wherein the oscillation system used in the equation creating section is a gear pair of the final gear and a driving gear of the final gear in the gear driving system.

4. A program for causing a computer to operate as:

a setting section for setting a gear characteristic value for a gear driving system;

a calculating section for simulating an oscillation in a final gear of the gear driving system, based on the gear characteristic value set in the setting section;

a judging section for judging whether or not the oscillation in the final gear determined by the simulation in the calculating section is within an acceptable range;

and

a setting changing section for changing the gear characteristic value set in the setting section, when the judging section judges that the oscillation in the final gear does not fall within the acceptable range.

5. The program as set forth in claim 4,

wherein the calculating section includes:

an equation creating section for creating an equation of oscillation motion for a predetermined oscillation system in the gear driving system, using the gear characteristic value set in the setting section; and

an equation analyzing section for solving the equation of oscillation motion created by the equation creating section, so as to determine an oscillation frequency and an oscillation amplitude of the oscillation system, and

wherein the judging section judges that the oscillation in the final gear is within the acceptable range when at least one of the oscillation frequency and the oscillation amplitude determined by the equation analyzing section fall within the acceptable range.

6. The program as set forth in claim 5, wherein the oscillation system used in the equation creating section is

a gear pair of the final gear and a driving gear of the final gear in the gear driving system.

7. A gear-driving-system designing method, comprising:

a setting step of setting a gear characteristic value for a gear driving system;

a calculating step of simulating an oscillation in a final gear of the gear driving system, based on the gear characteristic value set in the setting step;

a judging step of judging whether or not the oscillation in the final gear determined by the simulation in the calculating step is within an acceptable range; and

a setting changing step of changing and resetting the gear characteristic value set in the setting step, when the judging step judges that the oscillation in the final gear does not fall within the acceptable range,

the setting changing step, the calculating step, and the judging step being repeated until the oscillation in the final gear is judged to fall within the acceptable range in the judging step, and the gear characteristic value being outputted as an optimum gear characteristic when the oscillation in the final gear is judged to fall within the acceptable range.

8. The gear-driving-system designing method as set forth in claim 7,

wherein the calculating step includes:

an equation creating step of creating an equation of oscillation motion for a predetermined oscillation system in the gear driving system, using the gear characteristic value being set; and

an equation analyzing step of solving the equation of oscillation motion created by the equation creating step, so as to determine an oscillation frequency and an oscillation amplitude of the oscillation system, and

wherein the judging step judges that the oscillation in the final gear is within the acceptable range when at least one of the oscillation frequency and the oscillation amplitude determined by the equation analyzing step fall within the acceptable range.

9. The gear-driving-system designing method as set forth in claim 8, wherein the oscillation system used in the equation creating step is a gear pair of the final gear and a driving gear of the final gear in the gear driving system.